

**Technical Review Comments**  
**Vapor Intrusion Assessment Memorandum**  
**Pierson's Creek Superfund Site, Operable Unit 2**  
**Prepared by Geosyntec Consultants, Inc.**  
**May 6, 2019**

CDM Smith has reviewed the Vapor Intrusion (VI) Assessment Memorandum dated April 26, 2019, for Operable Unit 2 (OU2) of the Pierson's Creek Superfund Site (Site), located in Newark, New Jersey. The VI Assessment Memorandum was prepared by Geosyntec Consultants, Inc. (Geosyntec) on behalf of the Troy Chemical Corporation (Troy). Technical review comments are provided below.

**General Comments**

1. The VI Assessment reiterates the original proposed vapor intrusion scope that was included in the RI Workplan and notes the same approach will be utilized to select the new vapor intrusion sampling scope, but will utilize the information obtained from the new round of GW sampling, the building surveys, and the new shallow soil sampling. The most recent soil and groundwater sampling was intended to supplement the previous sampling summarized in the Geosyntec Remedial Action Report (RAR). The previous sampling data must also be utilized when determining which buildings to sample for VI, especially in areas where wells have been abandoned, or there is previous soil data. Please review all the available data when determining which buildings have potential VI impacts.
1. The EPA VI Screening Levels for ground water shown on Table 2 were calculated using a target cancer risk of  $10^{-4}$ . The risk based screening should be performed using an HQ of 1.0 and a target cancer risk of  $10^{-6}$ . Revise the table and review if the revised screening levels completes the VI pathways for the buildings evaluated.
2. All buildings identified for indoor air sampling should be sampled for mercury and the full EPA Method TO-15 Volatile Organic Compounds (VOCs) list. Limiting the sampling approach as proposed to select VOCs is not a conservative enough approach and would suggest all potential soil and groundwater contamination that could impact indoor air has been fully delineated, and that there aren't preferential subsurface pathways that could allow vapors to migrate further than anticipated. The approach taken in the memo to screen soils and groundwater concentrations to screen potential contaminants of concern for vapor intrusion is generally appropriate, but does leave some uncertainties.
3. The last paragraph on page no.13 generally states that an evaluation of approaches to mitigate future risk (that VI pathways for buildings may become complete via new construction or change in use of current buildings) will be completed as part of the FS and likely include institutional controls or annual monitoring. Collection of sub-slab air data in buildings where feasible is an important part of an assessment of future risk to vapor intrusion. Please collect sub-slab air samples at any buildings where the depth to water is more than 2-feet below the bottom of the slab. As shown on Figure 3, this would include buildings 20D, 40, 50, 71, 81, and 101.

## Specific Comments on Approach at Select Buildings

1. Building 40 – Include sampling for VOCs and mercury at Building 40. There is no current groundwater data nearby, however Figures 6-10 and 6-13 of the Geosyntec RAR show elevated benzene and CVOCs in shallow groundwater at TW-18P (temporary well point) adjacent to the building. In addition, the building is immediately adjacent to the creek in an area that contains high concentrations of benzene, CVOCs, and mercury as shown in the Geosyntec RAR.
2. Building 50 – Include sampling for VOCs and mercury at Building 50. There is no current groundwater data nearby, however Figure 6-10 of the Geosyntec RAR shows elevated benzene in shallow groundwater at MW-4 (now abandoned) which appears to be within the new building footprint. In addition, the building is immediately adjacent to the creek in an area that contains high concentrations of benzene, CVOCs, and mercury as shown in the Geosyntec RAR.
3. Building 81 – Sampling proposed in Building 81 consists of one sample in the warehouse space, but not the office space which is occupied. As it states in the VI Assessment that the two spaces are separate breathing zones, please provide rationale for including the sample in the warehouse space as opposed to the occupied office space. If the VI pathways are complete for both separate breathing spaces add a second sample for VOCs and mercury in the office space.
4. Building 98 – Include sampling for VOCs and mercury in indoor air for Building 98. There is no current groundwater data nearby; however, Figure 6-10 of the Geosyntec RAR shows elevated benzene in shallow groundwater at TW-16 (now abandoned) adjacent to the building. In addition, the building is adjacent to the creek which contains high concentrations of benzene, CVOCs, and mercury in soils immediately adjacent to the building as shown in the Geosyntec RAR.
5. Building 99 - Add sampling for VOCs, in addition to mercury, for Building 99. Benzene was elevated in groundwater to the northwest of the building at MW-7, and as shown on Figure 6-10 of the Geosyntec RAR, was also elevated in shallow groundwater at TW-15 (temporary well point) adjacent to the building.
6. Building 101 – Include sampling for VOCs and mercury in indoor air for Building 101. Based on review of the information provided on Table 4 and Table 5 it appears the VI pathway is complete, and sampling should be performed in this break room/ cafeteria/ locker room.
7. Guard shack in parking lot – Assess the potential for a complete vapor intrusion pathway for the guard shack in western parking lot due to elevated mercury in the shallow soils in this area. Include sampling for VOCs and mercury.